



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2014-0454; Directorate Identifier 2013-NM-138-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede Airworthiness Directive (AD) 2002-07-08, which applies to certain The Boeing Company Model 737 airplanes. AD 2002-07-08 currently requires repetitive inspections for cracking of the lower skin at the lower row of fasteners in the lap joints of the fuselage; repair of any cracking found; modification of the fuselage lap joints at certain locations, which terminates the repetitive inspections of the modified areas; and replacement of a certain preventive modification with an improved modification. Since we issued AD 2002-07-08, we have determined that adjacent stringers and window frames have cracked in locations outside the inspection areas addressed by AD 2002-07-08. This proposed AD would add repetitive inspections for cracking at certain window corner fastener holes, a preventive modification, post-repair/alteration and butt joint repetitive inspections, and repair if necessary. We are proposing this AD to detect and correct fatigue cracking of the fuselage lap joints, which could result in reduced structural integrity and sudden decompression of the airplane.

**DATES:** We must receive comments on this proposed AD by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0454; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601

Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: wayne.lockett@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the **ADDRESSES** section. Include “Docket No. FAA-2014-0454; Directorate Identifier 2013-NM-138-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### **Discussion**

On April 2, 2002, we issued AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), for certain The Boeing Company Model 737 airplanes. AD 2002-07-08 requires repetitive inspections for cracking of the lower skin at the lower row of fasteners in the lap joints of the fuselage; repair of any cracking found; modification of the fuselage lap joints at certain locations, which terminates the repetitive inspections of the modified areas; and replacement of a certain preventive modification with an improved modification. AD 2002-07-08 resulted from the FAA’s determination that, in light of additional crack findings, certain modifications of the fuselage lap joints did not provide an acceptable level of safety. We issued AD 2002-07-08 to detect and correct

cracking of the fuselage lap joints, which could result in sudden decompression of the airplane.

### **Widespread Fatigue Damage**

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without intervention, these cracks will grow, and eventually compromise the structural integrity of the airplane, in a condition known as widespread fatigue damage (WFD). As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that design approval holders (DAHs) establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however, do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

**Actions Since AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), Was Issued**

Since we issued AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), we have determined that adjacent stringers and window frames have cracked in locations outside the inspection areas addressed by AD 2002-07-08. More extensive inspections over a larger area are therefore necessary.

**Relevant Service Information**

We reviewed Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, which describes procedures for certain new actions that were not included in previous revisions of this service information. These new actions include repetitive inspections for cracking at certain window corner fastener holes, a preventive modification, and post-repair/alteration and butt joint repetitive inspections and repair if necessary. For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for Docket No. FAA-2014-0454.

### **FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

### **Proposed AD Requirements**

This proposed AD would retain certain requirements of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002). This proposed AD would also require accomplishing the actions specified in the service information described previously, except as discussed under "Difference Between this Proposed AD and the Service Information."

### **Related ADs**

Boeing has identified a group of airplanes affected by AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), that did not specify crown lap splice inspections until they reached their modification threshold of 50,000 total flight cycles. This was determined to be a safety concern. We have issued AD 2013-09-01, Amendment 39-17442 (78 FR 27001, May 9, 2013), to require these crown lap splice inspections for the affected airplanes, and this proposed AD would remove the overlapping requirements (paragraphs (a), (b), (c), and (f)) from AD 2002-07-08. Those crown lap splice inspections are described in Boeing Service Bulletin 737-53A1255, Revision 2, dated August 7, 2012.

AD 2013-09-01, Amendment 39-17442 (78 FR 27001, May 9, 2013), applies to certain Model 737 airplanes and requires various repetitive inspections for cracking of certain fuselage crown lap joints. The lap joint modification/repair specified in this proposed AD would terminate certain inspections of AD 2013-09-01.

### **Difference Between the Proposed AD and the Service Information**

Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, specifies to contact the manufacturer for instructions for certain actions, but this proposed AD would require accomplishment of those actions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

This proposed AD will address only Model 737 airplanes with line numbers 292 through 2565. Model 737 airplanes with line numbers 1 through 291 have been addressed in AD 2003-23-03, Amendment 39-13367 (68 FR 64980, November 18, 2003).

### **Additional Changes to AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)**

Boeing Commercial Airplanes has received an ODA. This proposed AD would delegate the authority to approve an alternative method of compliance for any repair or modification required by this proposed AD to the Boeing Commercial Airplanes ODA rather than a Designated Engineering Representative (DER).

### **Explanation of a Certain Compliance Time**

The compliance time for the preventive modification specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is modified before WFD develops in airplanes. Standard inspection techniques cannot be relied on to detect WFD before it becomes a hazard to flight. We will not grant any extensions of the compliance time to complete any AD-mandated service bulletin related to WFD without extensive new data that would substantiate and clearly warrant such an extension.

### **Costs of Compliance**

We estimate that this proposed AD affects 247 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

**Estimated costs: required actions**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Retained lap joint modification	4,650 work-hours X \$85 per hour = \$395,250	Up to \$204,000	\$599,250	\$95,280,750 (estimated 159 airplanes)
Retained lap joint inspection	90 work-hours X \$85 per hour = \$7,650 per inspection cycle	\$0	\$7,650 per inspection cycle	\$1,889,550 per inspection cycle
Retained post-NACA inspection	110 work-hours X \$85 per hour = \$9,350 per inspection cycle	\$0	\$9,350 per inspection cycle	\$308,550 per inspection cycle (estimated 33 airplanes)
Retained window corner inspection	36 work-hours X \$85 per hour = \$3,060 per inspection cycle	\$0	\$3,060 per inspection cycle	\$755,820 per inspection cycle
New window corner inspection	108 work-hours X \$85 per hour = \$9,180 per inspection cycle	\$0	\$9,180 per inspection cycle	\$2,267,460 per inspection cycle

**Estimated costs: optional actions**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
New preventive modification	134 work-hours X \$85 per hour = \$11,390	\$0	\$11,390

We estimate the following costs to do any necessary corrective actions that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these corrective actions:

**On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per corner</b>
Window corner repair, per corner	9 work-hours X \$85 per hour = \$765	<sup>1</sup>	\$765

<sup>1</sup>Parts fabricated by operator; cost unknown



The cost estimate figures discussed above are based on assumptions that no operator has yet accomplished any of the actions required by this proposed AD, and that no operator would accomplish those actions in the future if this proposed AD were not adopted. However, we have been advised that the lap joint modification has already been installed on some affected airplanes. Therefore, based on the current number of U.S.-registered airplanes below the threshold of 50,000 total flight cycles, the future economic cost impact of this proposed AD on U.S. operators is expected to be less than the cost impact figure indicated above.

#### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This proposed regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

#### **Regulatory Findings**

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

**PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), and adding the following new AD:

**The Boeing Company:** Docket No. FAA-2014-0454; Directorate Identifier 2013-NM-138-AD.

**(a) Comments Due Date**

The FAA must receive comments on this AD action by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**(b) Affected ADs**

This AD replaces AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002). Certain provisions of this AD affect certain requirements of AD 2013-09-01, Amendment 39-17442 (78 FR 27001, May 9, 2013).

**(c) Applicability**

This AD applies to The Boeing Company Model 737-200, -200C, -300, -400, and -500 series airplanes, certificated in any category, line numbers 292 through 2565 inclusive.

**(d) Subject**

Air Transport Association (ATA) of America Code 53, Fuselage.

**(e) Unsafe Condition**

This AD was prompted by an evaluation by the design approval holder (DAH) indicating that certain fuselage lap joints are subject to widespread fatigue damage (WFD). We are issuing this AD to detect and correct fatigue cracking of the fuselage lap joints, which could result in reduced structural integrity and sudden decompression of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Retained Lap Joint Modification (Repair) - Crown Areas**

This paragraph restates the actions required by paragraph (g) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. Except as provided by paragraph (h) of this AD: Install the lap joint repair as specified in Part 1.E.1. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 4, dated September 2, 1999; Boeing Service Bulletin 737-53A1177, Revision 5, dated February 15, 2001; or Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; per PART III or IV ("Lap Joint Repair"), as applicable; or Boeing Service Bulletin

737-53A1177, Revision 7, dated June 14, 2013; per PART III, IV, VI, or VII (“Lap Joint Modification (Repair)”), as applicable, of the Accomplishment Instructions of the applicable service bulletin; at the time specified in paragraph (g)(1), (g)(2), (g)(3), (g)(4), or (g)(5) of this AD, as applicable. Accomplishment of this repair terminates the repetitive inspections required by paragraph (j) of this AD. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph. A lap splice modification (repair) done in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, terminates the inspections required by paragraphs (g) and (i) of AD 2013-09-01, Amendment 39-17442 (78 FR 27001, May 9, 2013), for the modified (repaired) area only.

(1) For airplanes that have accumulated 70,000 total flight cycles or more as of May 17, 2002 (the effective date of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)): Within 600 flight cycles after May 17, 2002, do the lap joint repair.

(2) For airplanes that have accumulated 65,000 total flight cycles or more, but fewer than 70,000 total flight cycles as of May 17, 2002 (the effective date of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)): Do the repair at the later of the times specified in paragraphs (g)(2)(i) and (g)(2)(ii) of this AD.

(i) Before the accumulation of 70,000 total flight cycles.

(ii) Within 600 flight cycles after May 17, 2002 (the effective date of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)).

(3) For airplanes that have accumulated 45,000 total flight cycles or more, but fewer than 65,000 total flight cycles as of May 17, 2002 (the effective date of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)): Within 5,000 flight cycles after May 17, 2002.

(4) For airplanes that have accumulated less than 45,000 total flight cycles as of May 17, 2002 (the effective date of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002)): Before the accumulation of 50,000 total flight cycles.

(5) Notwithstanding the times specified in paragraphs (g)(1), (g)(2), (g)(3), and (g)(4) of this AD, for airplanes on which the “Preventive Change” (NACA modification) has been accomplished per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997: Within 18,000 flight cycles after accomplishment of the NACA modification.

**(h) Retained Lap Joint Modification for Certain Airplanes**

This paragraph restates the requirements of paragraph (h) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information and revised airplane groups.

(1) For airplanes identified as Groups 3 and 5 in Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001: Install the lap joint repair at stringers 4R and 10R, as specified in Part 1.E.1. (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, at the time specified in paragraph (g)(1), (g)(2), (g)(3), (g)(4), or (g)(5) of this AD, as applicable, using a method approved in accordance with the procedures specified in paragraph (t) of this AD.

(2) For airplanes identified in Groups 6, 7, and 8 in Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013: Install the lap joint repair at stringers 4R and 10R, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, at the time specified in paragraph (g)(1), (g)(2), (g)(3), (g)(4), or (g)(5) of this AD, as applicable, unless previously accomplished as specified in paragraph (h)(1) of this AD.

**(i) Retained Repetitive Low Frequency Eddy Current (LFEC) Inspections - Outside Crown Areas**

This paragraph restates the actions required by paragraph (i) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. Before the accumulation of 70,000 total flight cycles, or within 2,500 flight cycles after May 17, 2002 (the effective date of AD 2002-07-08), whichever comes later: Do an LFEC inspection to find cracking of the lap joints of the fuselage, as specified in Part 1.E.2. (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; and as identified in Figures 2 through 6 of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or as identified in Figures 50 through 64 of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. Do the inspection per Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph. Repeat the inspection after that at intervals not to exceed 5,000 flight cycles.

**(j) Retained Post-NACA Modification Inspections – Crown Areas**

This paragraph restates the actions required by paragraph (j) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. For airplanes that have the “Preventive Change” (NACA modification) of the crown lap joint stringers (“Crown Laps”) done per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Boeing Service Bulletin 737-53A1177, Revision 2, dated July 24, 1997; or Boeing Service Bulletin 737-53A1177, Revision 3, dated September 18, 1997: Within 12,000 flight cycles after accomplishment of the NACA modification, or within 750 flight cycles

after May 17, 2002 (the effective date of AD 2002-07-08), whichever is later, do either an external (Figure 8) or internal (Figure 9) LFEC inspection to find cracking and corrosion as specified in Part 1.E.4.a. (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; per PART I (“Inspection”) of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph.

(1) If the external inspection is done: Repeat the inspection after that at intervals not to exceed 1,500 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

(2) If the internal inspection is done: Repeat the inspection after that at intervals not to exceed 4,500 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

**(k) Retained Post-NACA Modification Inspections – Outside Crown Areas**

This paragraph restates the actions required by paragraph (k) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. For airplanes that have the “Preventive Change” (NACA modification) outside the crown areas done per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Boeing Service Bulletin 737-53A1177, Revision 2, dated July 24, 1997; or Boeing Service Bulletin 737-53A1177, Revision 3, dated September 18, 1997: Before the accumulation of 20,000 flight cycles after accomplishment of the NACA modification, or within 750 flight cycles after May 17, 2002 (the effective date of AD 2002-07-08), whichever is later, do either an external (Figure 8) or internal (Figure 9) LFEC inspection to find cracking and corrosion

as specified in Part 1.E.4.b. (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; per PART I (“Inspection”) of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph.

(1) If the external inspection is done: Repeat the external inspection after that at intervals not to exceed 1,500 flight cycles.

(2) If the internal inspection is done: Repeat the internal inspection after that at intervals not to exceed 4,500 flight cycles.

**(l) Retained Modification of Tear Strap Splice Straps**

This paragraph restates the actions required by paragraph (l) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. For airplanes that have the “lap joint repair,” as specified in Part IV of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 2, dated July 24, 1997, or Revision 3, dated September 18, 1997: Within 45,000 flight cycles after accomplishment of this lap joint repair, modify the splice straps per Figures 10, 11, and 12 of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph.

**(m) Retained Follow-On LFEC Inspections**

This paragraph restates the actions required by paragraph (m) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information.



Within 45,000 flight cycles after accomplishment of the lap joint repair required by paragraph (g) or (h) of this AD, as applicable: Do either an external or internal (Figure 9) LFEC inspection as specified in Part 1.E.7. (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; to find cracking of the lap joint repair, per PART I (“Inspection”) of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph. Repeat the inspection after that at intervals not to exceed 2,800 flight cycles.

**(n) Retained Repetitive High Frequency Eddy Current (HFEC) Inspections - Window Corners**

This paragraph restates the actions required by paragraph (n) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. For airplanes having line numbers 520 through 2565 inclusive: Before the accumulation of 50,000 total flight cycles, or within 2,250 flight cycles after May 17, 2002 (the effective date of AD 2002-07-08), whichever comes later, do an HFEC inspection to find cracking as specified in Part 1.E.10 (“Compliance”) of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; per PART V (“Window Corner Fastener Hole Cracking, Inspection and Repair”) of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. Repeat the inspection after that at intervals not to exceed 4,500 flight cycles, until the initial actions required by paragraph (p) of this AD have been done. Accomplishment of the modification (which includes removing and discarding fasteners, oversizing fastener holes, and installing

rivets or Hi-Lok fasteners, as applicable), per PART V of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 5, dated February 15, 2001; or Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; constitutes terminating action for the inspections required by this paragraph.

**(o) Retained Crack Repair**

This paragraph restates the actions required by paragraph (d) of AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), with revised service information. If any crack is found during any inspection required by paragraph (i), (j), (k), (m), or (n) of this AD: Before further flight, repair per PART II (“Crack Repair”) of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; or Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; except as required by paragraph (s)(2) of this AD. As of the effective date of this AD, only Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, may be used to do the actions required by this paragraph.

**(p) New Inspections, Repair, and Preventive Modification**

For airplanes identified as Groups 2 through 28 in Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013: At the applicable times specified in tables 8, 9, 10, and 11 of paragraph 1.E.10 of the Compliance section of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, except as required by paragraph (s)(1) of this AD, do a surface HFEC inspection for cracking at the applicable window corner fastener holes, and do a preventive modification, as applicable, in accordance with Part V of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, except as required by paragraph (s)(2) of this AD. Repair any crack found before further flight in accordance with Part V of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7,

dated June 14, 2013, except as required by paragraph (s)(2) of this AD. Repeat the applicable inspection thereafter at the applicable times specified in tables 8, 9, 10, and 11 of paragraph 1.E.10 of the Compliance section of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. Accomplishment of the initial inspection specified in this paragraph terminates the repetitive inspection requirements of paragraph (n) of this AD. Accomplishment of the preventive modification specified in this paragraph terminates the repetitive inspection requirements of this paragraph for the applicable corner fastener locations specified in Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013.

**(q) Optional Terminating Action**

(1) Accomplishment of the actions specified in Part VIII or Part IX, as applicable, of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, terminates the repetitive inspections at the window corners specified in paragraph (p) of this AD.

(2) Replacement of the skin panel as specified in Part VIII or Part IX, as applicable, of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, terminates the lap joint modification required by paragraph (g) of this AD for the S-10 and S-14 lap joints common to the replaced panel only.

**(r) Post-repair/alteration Inspections and Repair**

For airplanes identified as Groups 2 through 28 in Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013: Except as provided by paragraph (s)(1) of this AD, at the time specified in tables 12, 13, 14, 15, 16, 17, and 18, as applicable, of paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, do the applicable post-repair and post-alteration inspections (including an internal HFEC inspection, external surface inspection, surface inspection, and internal surface HFEC inspections), and butt joint inspections (including internal

surface HFEC and detailed inspections) for cracking at the applicable locations, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013. Repair any crack before further flight using a method approved in accordance with the procedures specified in paragraph (t) of this AD. Repeat the applicable inspections thereafter at the time specified in tables 12, 13, 14, 15, 16, 17, and 18, as applicable, of paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013.

**(s) Exceptions to Service Information Specifications**

(1) Where Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013, specifies a compliance time “after the Revision 7 date of this service bulletin,” this AD requires compliance within the specified compliance time after the effective date of this AD.

(2) Where Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; and Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; specify to contact Boeing for certain procedures: Do the specified actions before further flight using a method approved in accordance with the procedures specified in paragraph (t) of this AD.

(3) Where Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; and Boeing Service Bulletin 737-53A1177, Revision 7, dated June 14, 2013; include the phrase “or is Boeing or FAA approved,” this AD requires the “Boeing Approval” to be requested in accordance with the procedures specified in paragraph (t) of this AD.

**(t) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal

inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (u)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved for AD 2002-07-08, Amendment 39-12702 (67 FR 17917, April 12, 2002), are approved as AMOCs for the corresponding provisions of this AD.

**(u) Related Information**

(1) For more information about this AD, contact Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6447; fax: 425-917-6590; email: wayne.lockett@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the

FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on July 13, 2014.

**Jeffrey E. Duven,**  
*Manager,*  
*Transport Airplane Directorate,*  
*Aircraft Certification Service.*

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